

Amendment and Response

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Serial No. 09/497,967

Confirmation No. 8124

Filed: February 4, 2000

For: DIAGNOSTIC AND PROTECTIVE ANTIGEN GENE SEQUENCES OF ICHTHYOPHTHIRIUSAmendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

- 1-2. Canceled
3. (currently amended) An isolated nucleic acid molecule comprising a polynucleotide fragment having a nucleotide sequence that encodes ~~an antigenic portion of an i-antigen polypeptide having amino acid sequence SEQ ID NO:7, said antigenic portion of the i-antigen a~~ polypeptide comprising amino acids 21-452 of SEQ ID NO:7, wherein the polypeptide is capable of generating an immune response in fish against *Ichthyophthirius multifiliis*.
4. (currently amended) An isolated nucleic acid molecule comprising a polynucleotide fragment having a nucleotide sequence that encodes a polypeptide comprising an N-terminus ~~at least one terminal membrane targeting portion of an i-antigen polypeptide having amino acid sequence SEQ ID NO:7, said terminal membrane targeting portion wherein said terminal membrane targeting portion is encoded by SEQ ID NO:19 or a C-~~ terminus encoded by SEQ ID NO:20, or both.
5. (previously presented) An isolated nucleic acid molecule comprising a polynucleotide fragment having a nucleic acid sequence that encodes SEQ ID NO:7.
6. (previously presented) The nucleic acid molecule of any of claims 3-5 or 36 that is a vector capable of expressing the polypeptide encoded by the nucleic acid sequence in a *Tetrahymena* host cell.

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- 7-9. (canceled)
10. (previously presented) An isolated nucleic acid molecule comprising at least 50 nucleotides that hybridizes with any of the nucleic acid molecules of claims 3-5 or 36 under conditions exemplified by about 150 mM NaCl, 15 mM trisodium citrate, and pH 7.6 at 55°C.
11. (previously presented) An isolated nucleic acid molecule comprising a polynucleotide fragment comprising at least 50 nucleotides that hybridizes to the complement of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:44, SEQ ID NO:19, SEQ ID NO:20 or SEQ ID NO:102 under conditions comprising about 150 mM NaCl, 15 mM trisodium citrate, and pH 7.6 at 55°C.
- 12-13. (Canceled)
14. (previously presented) A composition for inducing an immune response in a fish, said composition comprising at least one nucleic acid molecule of any of claims 3-6, 10, 11 or 36.
- 15-16. (Canceled)
17. (original) The composition of claim 14 wherein administration of the composition to fish prevents or controls *I. multifiliis* infection.
18. (previously presented) The composition of claim 14 wherein the polypeptide encoded by the nucleotide sequence is linked at its carboxy-terminus to a plurality of molecules of the C3d component of complement.

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19. (original) The composition of claim 14 formulated for oral administration.
20. (previously presented) The composition of claim 19 wherein the nucleic acid molecule is encapsulated in a biodegradable polymer.
21. (previously presented) A *Tetrahymena* host cell transformed with the nucleic acid molecule of claim 6.
23. (previously presented) Transformed *Tetrahymena* comprising the nucleic acid molecule of any of claims 3-6, 10, 11 or 36.
- 24-35. Canceled
36. (previously presented) The nucleic acid molecule of claim 5 comprising at least one nucleotide sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:44 and SEQ ID NO:102.
37. (canceled)
38. (previously presented) A nucleic acid molecule which is complementary to any of the nucleic acid molecules of claims 3-5 or 36.

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